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Arduino Dev System

Installing the Arduino IDE on Raspbian

Hardware Required:

- Raspberry PI 3
- 16 - 64GB SD Card
- Keyboard
- Mouse
- TV / Monitor with HDMI

Software Required:

- HDD Raw Copy Tool
- Raspian (Debian for Raspberry PI)
- Arduino IDE

In an educational setting, it would be possible to have a bunch of extra SD Cards ready to go with a clean image. No internet access is required to use the Arduino IDE and all the RetroLCD.com materials are intended to be printed out. The devices could be stored in a locked enclosure to prevent students from accessing the SD card and have an aluminum foil coating on the inside to block wifi to keep students off the internet while in class.

All that is needed to refresh a RaspberryPI image is HDD Raw Copy Tool and a Windows machine.

For home use, there's no reason to block the WiFi and it can serve as a cheap device to get kids started with learning how to code on the Arduino. Setting one up is as easy as pie.

RaspberryPI 3 B+ -- $35

- 1.4GHz
- Quad Core
- 64-bit
- WiFi
- Bluetooth

Note: You may want to buy a kit version of the Raspberry PI in order to get a nice case, power supply and heat sinks. $50 – 60 for a kit with power supply and case is perfectly reasonable as cases are around $10 and power supplies around $5 – 10.

https://www.amazon.com/CanaKit-Raspberry-Premium-Clear-Supply/dp/B07BC7BMHY/ref=as_li_ss_tl?s=pc&ie=UTF8&qid=1546045275&sr=1-5&keywords=raspberry+pi+3+b+&linkCode=ll1&tag=giftster-20&linkId=297509cbb93d6c5823e59a52cf1611fd&language=en_US

16 GB MicroSD Card -- $10 or less

If you plan on doing a lot of work on the RaspberryPI you may want to spring for a larger MicroSD card, but 16GB is plenty for Raspbian and Arduino development. You can always use a USB flash drive for additional storage of your files. In fact, you would probably be wise to use that option so you can more easily backup your files.

USB Keyboard and Mouse -- $15

The AmazonBasics Wired Keyboard and Mouse Bundle Pack is perfectly sufficient.

HDMI enabled TV or Monitor -- $100 or less

When it comes to the RaspberryPI, you won't be needing a 4K monitor and so any budget 1080p or 720p TV will work just fine. In fact, if you already have a TV, it will probably work unless it is a 4K TV. The RaspberryPI simply does not have enough graphics power to run a 4K TV to even the minimum required refresh rate.

HDD Raw Copy Tool -- Free

http://hddguru.com/software/HDD-Raw-Copy-Tool/

This tool makes it very easy to copy the Raspbian image onto your MicroSD card. Other tools operate on the MicroSD card as a drive which means if the MicroSD card is already formatted for Linux, you will not be able to copy the image onto it as Windows cannot work with it. HDD Raw Copy Tool operates at a very low level and so it does not matter if the MicroSD card is formatted, it will copy the image over and even existing partitions will be ignored.

Raspbian Stretch with Desktop -- Free

https://www.raspberrypi.org/downloads/raspbian/

The version with "recommended software" is not recommended. You will want the minimum pre-installed software.

Note "Stretch" is just the version of Raspbian available at the time this was written. Raspbian is the main Operating System name.

Download the ZIP file and then extract the file. Use HDD Raw Copy Tool to copy the image to your MicroSD card. Finally, pop the MicroSD card into your Raspberry PI and turn it on.

Arduino IDE -- Free

https://www.arduino.cc/en/main/software

The version of the Arduino IDE that you can get with sudo apt-get install Arduino is very old and lacks even basic features like Line Numbers. Therefore, you'll want to fire up Chromium on your RPI and visit the above link to get the Linux ARM version of the IDE. After you download the file, you will need to extract it, and then open Terminal and run the install.sh file.

https://medium.com/@ronm333/installing-the-arduino-ide-on-the-raspberry-pi-82301ab381b9

After installing, you will want to go into File -> Preferences and set the Line Numbers to show up.

That's it. You're now ready to start following along with the RetroLCD.com materials.